

What is claimed is:

1. An isolated polypeptide comprising an amino acid sequence selected from the group consisting of:

a) a mature form of an amino acid sequence chosen from the group consisting of SEQ ID NOs: 8, 16, 24, 26, 28 and 30;

b) a variant of a mature form of an amino acid sequence selected from the group consisting of SEQ ID NOs: 8, 16, 24, 26, 28 and 30, wherein any amino acid in the mature form of the chosen sequence is changed to a different amino acid, provided that no more than 15% of the amino acid residues in the sequence of the mature form are so changed;

c) an amino acid sequence selected from the group consisting of SEQ ID NOs: 8, 16, 24, 26, 28 and 30; and

d) a variant of an amino acid sequence selected from the group consisting of SEQ ID NOs: 8, 16, 24, 26, 28 and 30, in which any amino acid specified in the chosen sequence is changed to a different amino acid, provided that no more than 15% of the amino acid residues in the sequence are so changed.

2 The polypeptide of claim 1 that is a variant polypeptide, wherein the polypeptide comprises the amino acid sequence of a naturally occurring allelic variant of said polypeptide.

3. The polypeptide of claim 2, wherein the variant is the translation of a single nucleotide polymorphism.

4. The polypeptide of claim 1, wherein any amino acid specified in the chosen sequence is changed to provide a conservative substitution.

5. An isolated polypeptide comprising an amino acid sequence selected from the group consisting of:

a) a mature form of an amino acid sequence chosen from the group consisting of SEQ ID NOs: 2, 4, 6, 10, 12, 14, 18, 20, and 22; and

b) an amino acid sequence selected from the group consisting of SEQ ID NOs: 2, 4, 6, 10, 12, 14, 18, 20, and 22.

6. An isolated nucleic acid molecule comprising a nucleic acid sequence encoding a polypeptide comprising the amino acid sequence of a polypeptide selected from the group consisting of:

a) a mature form of an amino acid sequence selected from the group consisting of SEQ ID NOs: 8, 16, 24, 26, 28 and 30;

b) a mature form of a variant of an amino acid sequence selected from the group consisting of SEQ ID NOs: 8, 16, 24, 26, 28 and 30, wherein any amino acid in the mature form of the chosen sequence is changed to a different amino acid, provided that no more than 15% of the amino acid residues in the sequence of the mature form are so changed;

c) an amino acid sequence selected from the group consisting of SEQ ID NOs: 8, 16, 24, 26, 28 and 30;

d) a variant of an amino acid sequence selected from the group consisting of SEQ ID NOs: 8, 16, 24, 26, 28 and 30, in which any amino acid specified in the chosen sequence is changed to a different amino acid, provided that no more than 15% of the amino acid residues in the sequence are so changed; and

e) a nucleic acid fragment encoding at least a portion of a polypeptide comprising an amino acid sequence chosen from the group consisting of SEQ ID NOs: 8, 16, 24, 26, 28 and 30;

or the complement of said nucleic acid molecule.

7. The nucleic acid molecule of claim 6, wherein the nucleic acid molecule comprises the nucleotide sequence of a naturally occurring allelic nucleic acid variant.

8. The nucleic acid molecule of claim 6 that encodes a variant polypeptide, wherein the encoded variant polypeptide has the polypeptide sequence of a naturally occurring polypeptide variant.

9. The nucleic acid molecule of claim 6, wherein the nucleic acid molecule comprises a single nucleotide polymorphism encoding said variant polypeptide.

10. The nucleic acid molecule of claim 6, wherein said nucleic acid molecule comprises a nucleotide sequence selected from the group consisting of

a) a nucleotide sequence comprising a nucleotide sequence selected from the group consisting of SEQ ID NOs: 7, 15, 23, 25, 27, and 29;

b) a nucleotide sequence wherein one or more nucleotides in a nucleotide sequence from the group consisting of SEQ ID NOs: 7, 15, 23, 25, 27, and 29 is changed from that given by the chosen sequence to a different nucleotide provided that no more than 20% of the nucleotides are so changed;

c) a nucleic acid fragment of a); and

d) a nucleic acid fragment of b).

11. The nucleic acid molecule of claim 6, wherein said nucleic acid molecule hybridizes under stringent conditions to a nucleotide sequence chosen from the group consisting of SEQ ID NOs: 7, 15, 23, 25, 27, and 29, or a complement of said nucleotide sequence.

12. The nucleic acid molecule of claim 6, wherein the nucleic acid molecule comprises a nucleotide sequence in which any nucleotide specified in the coding sequence of the chosen nucleotide sequence is changed from that given by the chosen sequence to a different nucleotide provided that no more than 20% of the nucleotides in the chosen coding sequence are so changed, an isolated second polynucleotide that is a complement of the first polynucleotide, or a fragment of any of them.

13. An isolated nucleic acid molecule comprising a nucleic acid sequence encoding a polypeptide comprising the amino acid sequence of a polypeptide selected from the group consisting of:

a) a mature form of an amino acid sequence selected from the group consisting of SEQ ID NOs: 2, 4, 6, 10, 12, 14, 18, 20, and 22;

b) an amino acid sequence selected from the group consisting of 2, 4, 6, 10, 12, 14, 18, 20, and 22; and

c) a nucleic acid fragment encoding at least a portion of a polypeptide comprising an amino acid sequence chosen from the group consisting of SEQ ID NOs: 2, 4, 6, 10, 12, 14, 18, 20, and 22;

or the complement of said nucleic acid molecule.

14. The nucleic acid molecule of claim 13, wherein said nucleic acid molecule comprises a nucleotide sequence selected from the group consisting of

a) a nucleotide sequence comprising a nucleotide sequence selected from the group consisting of SEQ ID NOs: 1, 3, 5, 9, 11, 13, 17, 19, and 21; and

b) a nucleic acid fragment of a), or the complement of said nucleic acid molecule.

15. A vector comprising the nucleic acid molecule of claim 6.

16. The vector of claim 15, further comprising a promoter operably linked to said nucleic acid molecule.

17. A vector comprising the nucleic acid molecule of claim 13.

18. The vector of claim 16, further comprising a promoter operably linked to said nucleic acid molecule.

19. A cell comprising the vector of claim 15.

20.. A cell comprising the vector of claim 17.

21. An antibody that binds immunospecifically to the polypeptide of claim 1.
22. The antibody of claim 21, wherein said antibody is a monoclonal antibody.
23. The antibody of claim 21, wherein the antibody is a humanized antibody.
24. An antibody that binds immunospecifically to the polypeptide of claim 5.
25. The antibody of claim 24, wherein said antibody is a monoclonal antibody.
26. The antibody of claim 24, wherein the antibody is a humanized antibody.
27. A method for determining the presence or amount of the polypeptide of claim 1 in a sample, the method comprising:
 - (a) providing the sample;
 - (b) contacting the sample with an antibody that binds immunospecifically to a polypeptide of claim 1; and
 - (c) determining the presence or amount of antibody bound to said polypeptide, thereby determining the presence or amount of polypeptide in said sample.
28. A method for determining the presence or amount of the polypeptide of claim 5 in a sample, the method comprising:
 - (a) providing the sample;
 - (b) contacting the sample with an antibody that binds immunospecifically to a polypeptide of claim 5; and
 - (c) determining the presence or amount of antibody bound to said polypeptide, thereby determining the presence or amount of polypeptide in said sample.
29. A method for determining the presence or amount of the nucleic acid molecule of claim 6 in a sample, the method comprising:
 - (a) providing the sample;
 - (b) contacting the sample with a probe that binds to said nucleic acid molecule; and
 - (c) determining the presence or amount of the probe bound to said nucleic acid molecule,

thereby determining the presence or amount of the nucleic acid molecule in said sample.

30. A method for determining the presence or amount of the nucleic acid molecule of claim 13 in a sample, the method comprising:

- (a) providing the sample;
- (b) contacting the sample with a probe that binds to said nucleic acid molecule; and
- (c) determining the presence or amount of the probe bound to said nucleic acid molecule, thereby determining the presence or amount of the nucleic acid molecule in said sample.

31. A method of identifying an agent that binds to a polypeptide of claim 1, the method comprising:

- (a) contacting said polypeptide with said agent; and
- (b) determining whether said agent binds to said polypeptide.

32. A method of identifying an agent that binds to a polypeptide of claim 5, the method comprising:

- (a) contacting said polypeptide with said agent; and
- (b) determining whether said agent binds to said polypeptide.

33. A method for identifying a potential therapeutic agent for use in treatment of a pathology, wherein the pathology is related to aberrant expression or aberrant physiological interactions of the polypeptide of claim 1, the method comprising:

- (a) identifying a polypeptide related to the pathology;
- (b) providing a cell expressing the chosen polypeptide and having a property or function due to the action of the polypeptide;
- (c) contacting the cell with a composition comprising a candidate substance, and
- (d) determining whether the substance alters the property or function due to the action of the polypeptide;

whereby, if the alteration observed in the presence of the substance is not observed when the cell is contacted with a composition devoid of the substance, the substance is identified as a potential therapeutic agent.

34. A method for identifying a potential therapeutic agent for use in treatment of a pathology, wherein the pathology is related to aberrant expression or aberrant physiological interactions of the polypeptide of claim 5, the method comprising:

- (a) identifying a polypeptide related to the pathology;
- (b) providing a cell expressing the chosen polypeptide and having a property or function due to the action of the polypeptide;
- (c) contacting the cell with a composition comprising a candidate substance, and
- (d) determining whether the substance alters the property or function due to the action of the polypeptide;

whereby, if the alteration observed in the presence of the substance is not observed when the cell is contacted with a composition devoid of the substance, the substance is identified as a potential therapeutic agent.

35. A method for modulating the activity of the polypeptide of claim 1, the method comprising contacting a cell sample expressing the polypeptide of said claim with a compound that binds to said polypeptide in an amount sufficient to modulate the activity of the polypeptide.

36. A method for modulating the activity of the polypeptide of claim 5, the method comprising contacting a cell sample expressing the polypeptide of said claim with a compound that binds to said polypeptide in an amount sufficient to modulate the activity of the polypeptide.

37. A method of treating or preventing a SECX-associated disorder, said method comprising administering to a subject in which such treatment or prevention is desired the polypeptide of claim 1 in an amount sufficient to treat or prevent said SECX-associated disorder in said subject.

38. The method of claim 37, wherein said subject is a human.

39. A method of treating or preventing a SECX-associated disorder, said method comprising administering to a subject in which such treatment or prevention is desired the polypeptide of claim 5 in an amount sufficient to treat or prevent said SECX-associated disorder in said subject.

40. The method of claim 40, wherein said subject is a human.

41. A method of treating or preventing a SECX-associated disorder, said method comprising administering to a subject in which such treatment or prevention is desired the nucleic acid of claim 6 in an amount sufficient to treat or prevent said SECX-associated disorder in said subject.

42. The method of claim 41, wherein said subject is a human.

43. A method of treating or preventing a SECX-associated disorder, said method comprising administering to a subject in which such treatment or prevention is desired the nucleic acid of claim 13 in an amount sufficient to treat or prevent said SECX-associated disorder in said subject.

44. The method of claim 43, wherein said subject is a human.

45. A method of treating or preventing a SECX-associated disorder, said method comprising administering to a subject in which such treatment or prevention is desired the antibody of claim 21 in an amount sufficient to treat or prevent said SECX-associated disorder in said subject.

46. The method of claim 45, wherein the subject is a human.

47. A pharmaceutical composition comprising the polypeptide of claim 1 and a pharmaceutically acceptable carrier.

48. A pharmaceutical composition comprising the polypeptide of claim 5 and a pharmaceutically acceptable carrier.

49. A pharmaceutical composition comprising the nucleic acid molecule of claim 6 and a pharmaceutically acceptable carrier.

50. A pharmaceutical composition comprising the nucleic acid molecule of claim 13 and a pharmaceutically acceptable carrier.

51. A pharmaceutical composition comprising the antibody of claim 21 and a pharmaceutically acceptable carrier.

52. A pharmaceutical composition comprising the antibody of claim 24 and a pharmaceutically acceptable carrier.

53. A kit comprising in one or more containers, the pharmaceutical composition of claim 47.

54. A kit comprising in one or more containers, the pharmaceutical composition of claim 48.

55. A kit comprising in one or more containers, the pharmaceutical composition of claim 49.

56. A kit comprising in one or more containers, the pharmaceutical composition of claim 50.

57. A kit comprising in one or more containers, the pharmaceutical composition of claim 51.

58. A kit comprising in one or more containers, the pharmaceutical composition of claim 52.

59. The use of a therapeutic in the manufacture of a medicament for treating a syndrome associated with a human disease, the disease selected from a SECX-associated disorder, wherein said therapeutic is selected from the group consisting of a SECX polypeptide, a SECX nucleic acid, and a SECX antibody.

60. A method for screening for a modulator of activity or of latency or predisposition to a SECX-associated disorder, said method comprising:

- a) administering a test compound to a test animal at increased risk for a SECX-associated disorder, wherein said test animal recombinantly expresses the polypeptide of claim 1;
- b) measuring the activity of said polypeptide in said test animal after administering the compound of step (a);
- c) comparing the activity of said protein in said test animal with the activity of said polypeptide in a control animal not administered said polypeptide, wherein a change in the activity of said polypeptide in said test animal relative to said control animal indicates the test compound is a modulator of latency of or predisposition to a SECX-associated disorder.

61. The method of claim 59, wherein said test animal is a recombinant test animal that expresses a test protein transgene or expresses said transgene under the control of a promoter at an increased level relative to a wild-type test animal, and wherein said promoter is not the native gene promoter of said transgene.

62. A method for screening for a modulator of activity or of latency or predisposition to a SECX-associated disorder, said method comprising:

- a) administering a test compound to a test animal at increased risk for a SECX-associated disorder, wherein said test animal recombinantly expresses the polypeptide of claim 5;
- b) measuring the activity of said polypeptide in said test animal after administering the compound of step (a);
- c) comparing the activity of said protein in said test animal with the activity of said polypeptide in a control animal not administered said polypeptide, wherein a change in the activity of said polypeptide in said test animal relative to said control animal indicates the test compound is a modulator of latency of or predisposition to a SECX-associated disorder.

63. The method of claim 62, wherein said test animal is a recombinant test animal that expresses a test protein transgene or expresses said transgene under the control of a promoter at an increased level relative to a wild-type test animal, and wherein said promoter is not the native gene promoter of said transgene.

64. A method for determining the presence of or predisposition to a disease associated with altered levels of the polypeptide of claim 1 in a first mammalian subject, the method comprising:

- a) measuring the level of expression of the polypeptide in a sample from the first mammalian subject; and
- b) comparing the amount of said polypeptide in the sample of step (a) to the amount of the polypeptide present in a control sample from a second mammalian subject known not to have, or not to be predisposed to, said disease,

wherein an alteration in the expression level of the polypeptide in the first subject as compared to the control sample indicates the presence of or predisposition to said disease.

65. A method for determining the presence of or predisposition to a disease associated with altered levels of the polypeptide of claim 5 in a first mammalian subject, the method comprising:

- a) measuring the level of expression of the polypeptide in a sample from the first mammalian subject; and
- b) comparing the amount of said polypeptide in the sample of step (a) to the amount of the polypeptide present in a control sample from a second mammalian subject known not to have, or not to be predisposed to, said disease,

wherein an alteration in the expression level of the polypeptide in the first subject as compared to the control sample indicates the presence of or predisposition to said disease.

66. A method for determining the presence of or predisposition to a disease associated with altered levels of the nucleic acid molecule of claim 6 in a first mammalian subject, the method comprising:

- a) measuring the amount of the nucleic acid in a sample from the first mammalian subject; and
- b) comparing the amount of said nucleic acid in the sample of step (a) to the amount of the nucleic acid present in a control sample from a second mammalian subject known not to have or not be predisposed to, the disease;

wherein an alteration in the level of the nucleic acid in the first subject as compared to the control sample indicates the presence of or predisposition to the disease.

67. A method for determining the presence of or predisposition to a disease associated with altered levels of the nucleic acid molecule of claim 13 in a first mammalian subject, the method comprising:

- a) measuring the amount of the nucleic acid in a sample from the first mammalian subject; and
- b) comparing the amount of said nucleic acid in the sample of step (a) to the amount of the nucleic acid present in a control sample from a second mammalian subject known not to have or not be predisposed to, the disease;

wherein an alteration in the level of the nucleic acid in the first subject as compared to the control sample indicates the presence of or predisposition to the disease.

68. A method of treating a pathological state in a mammal, the method comprising administering to the mammal a polypeptide in an amount that is sufficient to alleviate the pathological state, wherein the polypeptide is a polypeptide having an amino acid sequence at least 95% identical to the polypeptide of claim 1, or a biologically active fragment thereof.

69. A method of treating a pathological state in a mammal, the method comprising administering to the mammal a polypeptide in an amount that is sufficient to alleviate the pathological state, wherein the polypeptide is a polypeptide having an amino acid sequence at least 95% identical to the polypeptide of claim 5, or a biologically active fragment thereof.

70. A method of treating a pathological state in a mammal, the method comprising administering to the mammal the antibody of claim 21 in an amount sufficient to alleviate the pathological state.

71. A method of treating a pathological state in a mammal, the method comprising administering to the mammal the antibody of claim 24 in an amount sufficient to alleviate the pathological state.